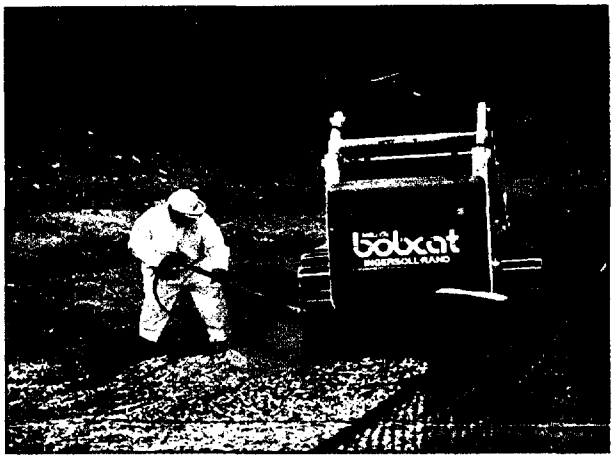
Creekside Commentary

May 2001 Issue 6

Creek Clean-up

Brush Clearing and Safety Fencing: As each section of the creek is cleared of brush and debris, orange fencing is being installed as a safety measure. The safety fencing acts as a physical barrier to discourage people and animals from entering the creek bed while the drying process continues. Trenches are dug through the center of the creek bed to maintain water flow.



View of powerwashing operation in the creek at Jerome Lane. All equipment used in the creek is powerwashed before it leaves the creek area to ensure that sediments remain in the creek. Orange safety fencing is visible in right foreground.

All workers in the creek exit through defined areas on the creek banks, wash off their boots and gloves and place their used coveralls in a container for appropriate disposal. All equipment in the creek is powerwashed before it leaves the creek area. These precautions are taken to ensure that creek sediments remain in the creek.

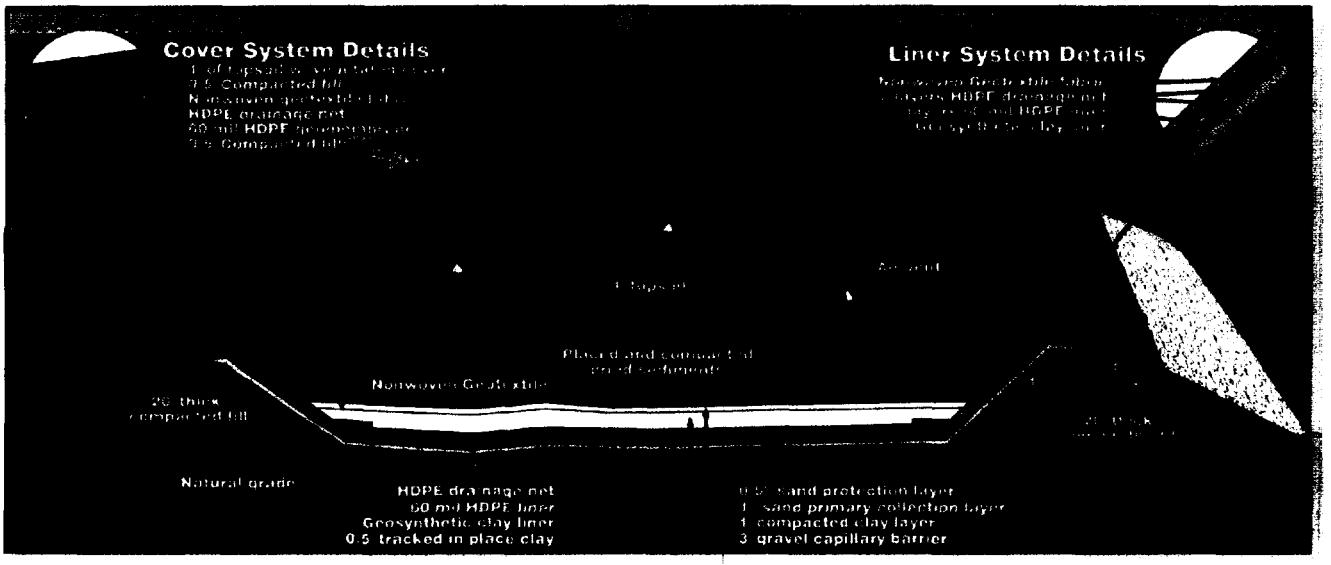
Staging areas are located in each creek section for the debris that must be removed, powerwashed and disposed of appropriately.

Cell Construction: Construction of the containment cell which will hold the creek sediments began in late April in a field along the creek near Judith Lane. The cell is being built by LMS of Madison, Indiana. Maverick Construction is providing construction management services on the project. Maverick worked with the Labor Management Committee of the Leadership Council Southwestern Illinois and local unions to coordinate the work force for this project.

The cell is being built under the oversight of the United States Environmental Protection Agency (USEPA). Kevin Turner is the USEPA on-scene coordinator.

Maverick Construction has hired an independent quality assurance contractor to be certain that LMS and its quality control department are following procedures and building the cell correctly.

Cell Construction



Cutout view of cell construction details. The base of the cell will be protected with commercial-grade impermeable primary and secondary liners, with a leak detection/collection system between the two liners.

Trailers housing the construction field offices and the USEPA project office are located on Judith Lane. To minimize disruption in the neighborhood during construction, crews are being transported to the work areas in a van rather than driving individually and a trailer is being staged at the work area so that crews can eat lunch without having to travel back to Judith Lane. As much as possible, equipment and materials are being dropped directly at the work areas to reduce traffic on Judith Lane; the cell area is watered down frequently to minimize dust; and Judith Lane (near the construction area) is cleaned nightly.

Topsoil in the cell area has been removed to reach the clay layer below, which provides a more stable base for compaction. Fill dirt is being hauled in to construct the berms (sides) of the containment cell. The cell base, liner system and berms must be built prior to receiving any sediment from the creek. Construction of the cell and sediments placement is estimated to continue through 2001 and be completed in early 2002.

As detailed in the cross section above, the base of the cell consists of over 6 feet of layered material, including gravel, compacted clay, geosynthetic clay liner, two layers of High Density Polyethylene (HDPE) liner, HDPE drainage net and sand. The berms of the cell will consist of compacted fill dirt 20 feet thick.

The liner system, which is contained within the base, consists of nonwoven geotextile fabric, two layers of HDPE drainage net, 2 layers of HDPE liner and a geosynthetic clay liner. A leak detection system is placed between the primary and secondary liners. In the unlikely event that the primary liner should leak, it will be detected and removed prior to any escape to the outside.

The cover system includes over 2 feet of layered material, including compacted fill, HDPE liner and drainage net, geotextile fabric and topsoil with vegetated cover (what you'll see on the outside of the cell).

After the sediment is placed in the cell and the cover system installed, regular maintenance will include pumping out liquid which will drain to an installed sump within the base of the cell. The amount of liquid to be removed will diminish with time as the compaction process squeezes residual liquids from the cell contents.

Creekside Commentary

Activity Increases

Work in Creek: Installation of orange safety fencing along the entire length of the creek is complete. Trash (old tires, metal waste and scrap, etc.) and large logs have been collected in each section of the creek. The trash has been powerwashed once. As it is removed from the creek, it will be powerwashed a second time and then placed in dumpsters. The dumpsters will then be removed for appropriate disposal. The logs will be chipped up and used for dust control.

Two large trackhoes being used to excavate sediments from the pond at the end of Walnut Street.

All of this material is being collected in each section until the entire creek has been completed. Then the powerwashing, trash removal and chipping operations will proceed down the creek. Removing all of the logs and trash at one time is less disruptive to the neighborhoods, and more efficient and cost-effective than bringing in the equipment several times.

Dewatering: The pond at the end of Walnut Street (near the Judith Lane construction site) is being cleared of trash and logs.

To drain the pond, the water is being pumped by several sump pumps into the creek between Judith Lane and Cahokia Street. Some of that water may flow further down the creek. This explains why some areas of the creek that had been fairly dry now contain water.

The pond sediments are being excavated using large trackhoes with scoops. The sediments are placed in a temporary holding area adjacent to the pond. This allows the sediments to dry and will speed up the process of placing the sediments in the

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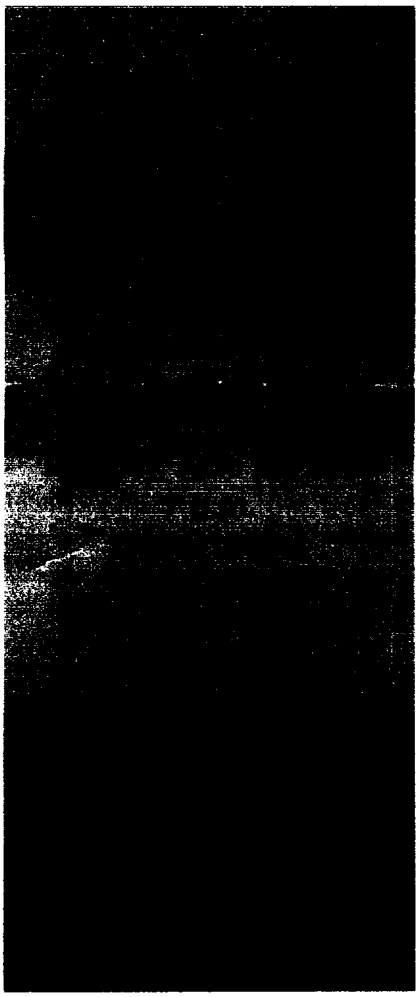
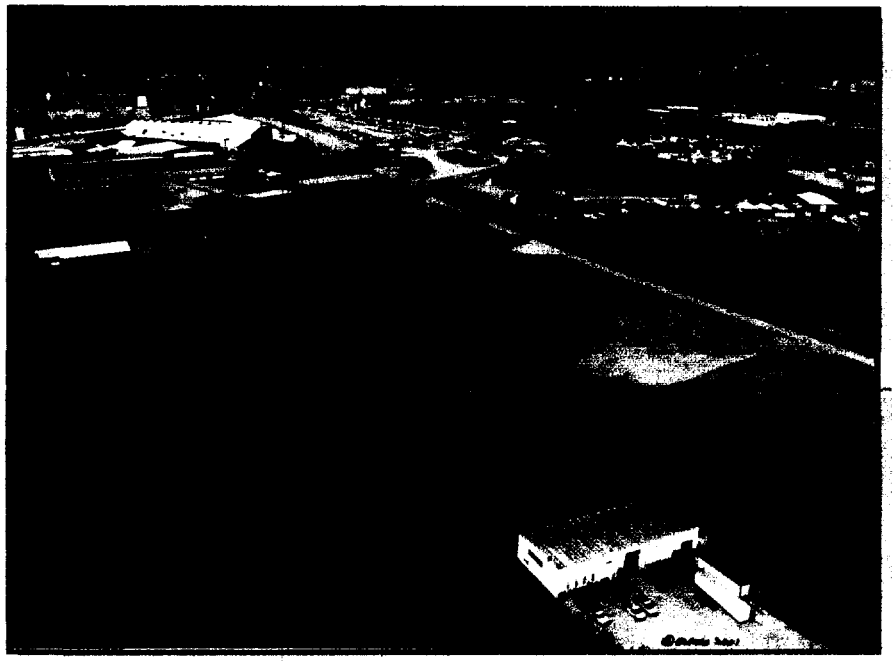
Cell Construction





Aerial view of containment cell construction site from Judith Lane looking north to Queeny Avenue. The black box in the center indicates the area of the base of the cell. (Copyrighted photo by Srenco Photography.)

containment cell once construction is complete.

Cell Construction: The rains in early June put the cell construction on Judith Lane somewhat behind schedule. To catch up, workers have been working some Saturdays and 12 hour work days are the norm. Dump truck traffic in the area is controlled by an off-duty Cahokia Police officer paid by Solutia, who is stationed at the site during construction hours.

Efforts to reduce dust and noise in the area continue, including street cleaning, watering down the construction site throughout the work day, and transferring workers by van to work sites along the creek.

The aerial view pictured above shows the containment cell construction site. Kelly Tire on Judith Lane is in the bottom right portion of the photo. The black box in the center of the photo depicts the area of the base of the cell.

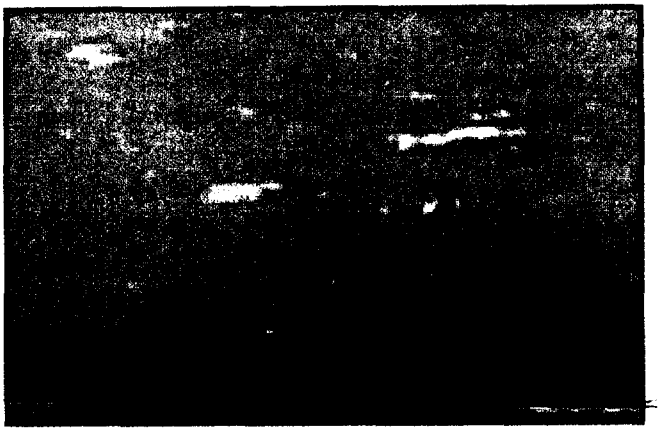
The base of the cell will consist of a multi-layered system of High Density Polyethylene (HDPE) liner, HDPE drainage net, gravel, clay, sand and geosynthetic clay liner. The liner system within the base will consist of layers of nonwoven geotextile fabric, HDPE drainage net, geosynthetic clay liner and HDPE liners, with a leak detection system between the primary and secondary liners.

All of this will be constructed between the ground and the sediments that will be placed in the cell. The cell berms (sides) will be constructed as the sediments are placed. The berms will extend outside the area of the black box in the photo above. Cell construction is expected to be completed this year.

Creekside Commentary

Construction Continues

Dewatering: Sediment removal from the pond at the end of Walnut Street should be completed by the end of July. The sediments are being placed in a temporary holding area adjacent to the pond to dry. Once the sediment is completely removed, the area will be graded and power seeded.



Twenty-nine turtles were removed from the pond, washed and relocated downstream. This turtle was in middle of pond; picture taken from bank of pond

All sediments placed in the temporary holding area will be screened to remove any sharp rocks, branches or foreign objects before being placed in the containment cell. These sediments will form the first layer in the cell and all sharp objects must be removed to ensure that the liner system is not punctured.

Turtle Relocation: Turtles removed from the pond at the end of Walnut Street during sediment removal were washed and then released into the creek downstream, beyond Route 3. Twenty-nine turtles of various sizes were relocated.

Dump truck dumping fill dirt on top of containment cell berm. Earth moving equipment places dirt and compacts it.

Cell Construction: Construction of the cell berms is nearing completion. This means a decrease in the dump truck traffic on Judith Lane, since most of that traffic was due to hauling fill dirt for berm construction.

Excavation of soil in the field north of Walnut Street and west of Falling

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Sediment Removal

Springs is for use in slope stabilization associated with the sediment removal from the pond at the end of Walnut Street. Once soil excavation is concluded, estimated to be by the end of July, grading and power seeding will be completed.

During July, construction will begin on the cell liner system.

Storm Water Drainage and Treatment System: Since the cell will be open to the elements during sediment placement, a drainage system will be built to collect and store rainwater which has come into contact with those sediments. The water will then be treated before being released into the HDPE by-pass piping, discharging down-stream.

Dump trucks, like the yellow one above, will transport sediment from the creek to the containment cell.

Work in Creek: In mid to late July, dump trucks, like the one pictured at right, will begin removing stockpiled sediments from creek sections and transporting them to the temporary holding area near the Judith Lane construction site.

These stockpiled sediments are located at Judith Lane, Cahokia Street, Kinder Street, Jerome Lane, Edgar Street and Parks College.

Stockpiled sediment shown in left foreground. Workers in disposable coveralls work in creek.

The stockpiles were created by construction of the retention basins at the entrance to each creek section. The stockpiles have been covered with black geotextile fabric and covered with tarps to keep the sediments contained and as dry as possible.

Trackhoes will be used to load the stockpiled sediment into the trucks. Each truck will be loaded, covered and checked before transporting the sediments. If sediment is found on the outside of a truck, it will be cleaned before leaving the creek. The trucks will be using the side streets and Falling Springs Road to reach the Judith Lane site.

Sediment Removal in Culvert Pipes: Also in mid to late July, workers will begin removing sediments from culvert pipes under Route 157 (from the south side of Cottonwood Apartments to the "wedge" at Route 3 and 157) and from the wedge west under Route 3.

Workers will wear disposable coveralls, gloves and boots while working in the area, just as they do while working in the creek. When actively working with the sediments, they will wear respirators. To clean the culverts, they must crawl in the pipe and use a vacuum hose attached to a truck to remove the sediments.

Sediment Removal

There are full-time quality control inspectors on site to assure that construction follows design standards. The United States Environmental Protection Agency and the Illinois Environmental Protection Agency will approve the cell construction before placement of any sediment occurs, to insure that construction has met the rigorous design specifications.

Sediment Removal: Sediment removal from the pond at the end of Walnut Street is complete. The slope stabilization work performed as part of that excavation created a sloped area, which has been seeded. The resulting grassy area will act as a storm water retention area, with twice the capacity of the previous site.

Trackhoe turning over sediment in temporary holding area, to speed up drying of the sediments.

Sediment removal is complete from the area behind Cottonwood Apartments and in the grassy wedge at Routes 3 and 157. The sediment was removed from the culverts using a vacuum truck and placed in the temporary holding area near the containment cell site.

The photo at left shows a trackhoe turning over the sediment in the temporary holding area. This is done on a regular basis to speed up the drying process.

The photo above right shows one of the large dump trucks being loaded with sediment from the creek behind Cottonwood Apartments. The small trackhoe in the creek (shown at left in the above photo) excavates the sediment and places it in piles. The large trackhoe then picks the sediment up from the piles and places it in the dump truck. Polyethylene lines the truck bed and is also placed on the ground between the trackhoe and the dump truck to capture any sediment which might fall out of the bucket during loading.

Dump truck being loaded with sediment behind Cottonwood Apartments. Trucks are lined with polyethylene before sediments are placed inside. An auto tarp on the truck is pulled over the top to contain the sediments while on the route to the containment cell area.

Once the truck is 3/4 full, the auto tarp roller on top of the truck is activated. It pulls a tarp over the top of the sediment to keep it contained en route to the temporary holding area.

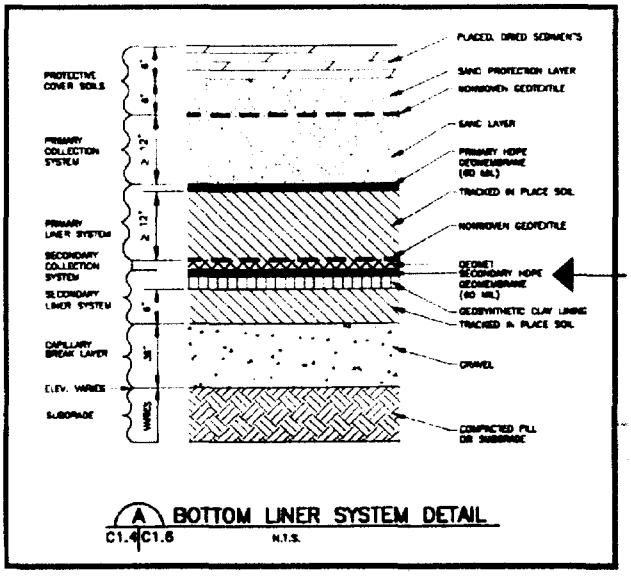
When school begins, the dump truck schedules will be coordinated to avoid school bus routes before and after school. This will minimize the dump trucks traveling in the same area as the school busses while children are entering and exiting the busses.

Creekside Commentary

Construction Progresses

Cell Construction: The lining system is currently being installed in the cell. The picture at right shows two of the layers. The white layer is the geosynthetic clay lining, a man-made material which is equivalent to one foot of compacted clay. The black layer in the far right of the picture is the secondary High Density Polyethylene (HDPE) geomembrane. Once the materials are unrolled into place, they are heat-sealed where they overlap, in order to form a more protective barrier.

A construction worker (at left in white) and a quality control inspector (in black) stand inside the containment cell. White geosynthetic clay liner and black secondary HDPE geomembrane are shown within the cell.



Engineering drawing of liner system detail. Construction is currently at the point shown by the red arrow.

The engineering drawing at left depicts the many layers which will be included in the completed liner system. The numbers down the left side of the drawing indicate the depth in inches of each material listed down the right side of the drawing. Construction has reached the secondary HDPE geomembrane, which is about the midway point of the layers (indicated by the red arrow).

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October 2001 Issue 10

Creekside Commentary

Cell Liner Complete

Cell Construction: Installation of the multi-layered containment cell lining system is complete. On September 24, the United States Environmental Protection Agency (USEPA) and the Illinois EPA granted approval of the cell installation as consistent with the approved design. Sediments began to be placed in the cell on September 26.

View of inside the containment cell. Lining system is now complete. Black geotextile fabric is on sides of cell with protective sand layer in bottom. Sediment will be placed on top of the sand.

The exterior slopes of the cell have been powerseeded to prevent erosion during the filling stage. Yet to come is a layer of large rock called riprap which is used to permanently protect the slopes of the cell.

Screening Sediment: Sediment from the temporary holding area that will form the initial layer in the cell is being screened to remove any sharp rocks, branches or foreign matter. All sharp objects must be removed from the sediments to be placed nearest the interior cell liner to protect the integrity of the liner system.

Trackhoes turning sediments from the temporary holding area to aid in drying. The blue tanks in the background are part of the temporary storm water collection and filtering system.

Sediment Removal: Approximately 50 percent of the sediments have been removed from the creek. Workers have completed sediment removal from Jerome Lane

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Sediment Removal

south. Sediment removal work has now begun in the creek between Queeny Avenue and Judith Lane, and from Jerome Lane north towards Kinder Street.

Above: "Before" photo of creek with piles of debris and refuse.
At right: "After" photo of creek. Sediments and debris have now been removed from this section of the creek (view from Edgar Street looking north).

The sediment in the lower portion of the creek was removed first for several reasons. There is a smaller amount of sediment in the lower portion of the creek. It is more difficult to remove and requires the longest amount of travel time in the trucks. Because the containment cell was not ready to receive sediments, it was determined this sediment could be removed and placed in the temporary holding area to dry before being placed in the cell. This allowed the project to stay on target for completion of sediment removal by year's end. All water in the creek is bypassing these cleaned areas, thus avoiding any possibility of recontamination before the upstream segments are cleaned.

Removal of the debris and refuse piles in the creek is being scheduled as rainy day work when it is too wet for workers to enter the creek. The debris can be removed from the creek using equipment stationed on the banks or at the temporary access areas.

Storm Water Management: A temporary storm water collection and treatment system has been built to manage all storm water which comes into contact with the sediments while they are being placed in the cell. The water will be clarified, filtered and treated with activated carbon before being released into the bypass piping, discharging downstream.

Judith Lane: The county laid an oil and chip road surface on Judith Lane and Falling Springs Road, completely unrelated to the cell construction project. This new road surface has created gravel dust. To minimize the dust from truck traffic going into and out of the Judith Lane construction site, workers periodically water down Judith Lane from the construction site to Falling Springs.

Construction Schedule: Construction work and sediment removal work is currently operating six days a week on a 12 hours a day schedule. Placement of sediment into the cell is estimated to continue into January.

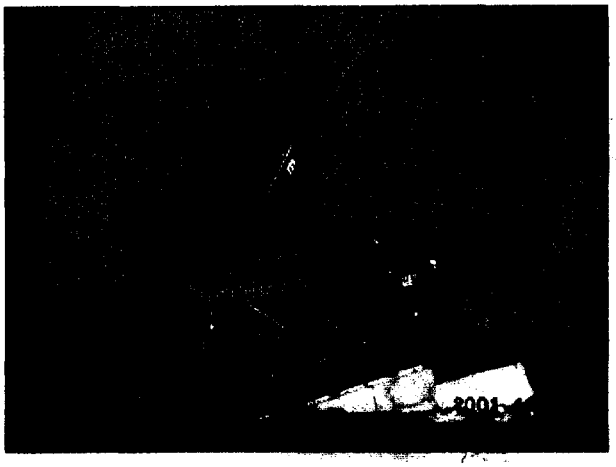
After all sediments have been placed, installation of the cell cover system will begin. Total project completion is estimated for second quarter of 2002.

Creekside Commentary

Planned Sediment Removal Near Completion

Sediment Placement: Placement of the sediments from the creek into the containment cell began on September 26.

Dump trucks, like the one pictured at right, transport the sediment removed from the creek to the Judith Lane containment cell. Once at the top of the containment cell, the trucks back onto one of two unloading ramps to dump the sediment into the cell. After the sediments are dumped, trackhoes inside the cell spread the sediment evenly.



Dump truck dumping sediment at top of containment cell. Trucks back onto one of two unloading ramps. A block on the ramps keeps the truck tires from touching the sediments inside the cell.

Placement of the sediments originally planned to be deposited in the cell was completed in early December. Approximately 35,000 cubic yards of sediment were removed from the creek and placed in the containment cell. This equates to filling approximately 3,273 of the large dump trucks used in the process.

Trackhoes move sediments dumped inside the cell.

However, the order by the United States Environmental Protection Agency (USEPA) which required removal of the creek sediments was amended in August 2001. The amendment modified the project scope and added another section of the creek for sediment removal and placement.

That additional creek section is being cleared, dewatered and the sediments removed and placed in the containment cell. The additional work equates to approximately 800

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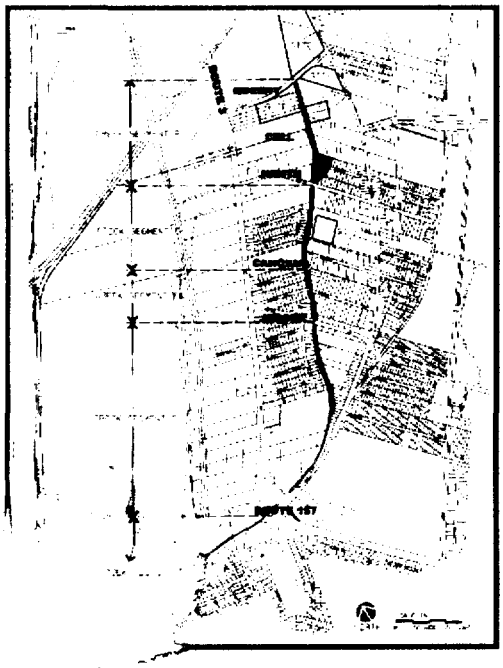


Green line depicts sections of the creek where sediment removal is complete.

more loads of sediment. The additional section is called Creek Sector F. It begins south of Route 3 and stretches for approximately 6,000 feet to the Prairie Dupont channel. The green shading in the diagram above depicts the sections of the creek where sediment removal is complete. The bottom of the map indicates where Creek Sector F begins (below the dotted line at Route 157).

Sediment removal in Creek Sector F should take an additional eight weeks if the weather remains cooperative. This work must be completed before the cap can be placed on the containment cell.

Transporting sediments from Creek Sector F requires the dump trucks to cross Route 3 near Route 157. The project team worked with the Illinois Department of Transportation to develop the truck crossing procedure. A lighted warning sign is present. Once across Route 3, the dump trucks travel down Falling Springs Road to the Judith Lane containment cell site.

Storm Water Management: The temporary storm water collection and treatment system has processed approximately 1 million gallons of storm water. This system was built to manage all storm water that comes in contact with the sediments placed in the cell.

Creek Sector B: Now that the section of the creek between Queeny Avenue and Judith Lane (Creek Sector B) has been cleared of sediment, a 60 mil High Density Polyethylene (HDPE) liner will be placed in the creek bottom. It will be covered with an articulated concrete mat (looks similar to cobblestone) to hold the liner in place. The liner system is being installed to isolate creek water from the creek bottom. This area had the highest concentrations of contaminants and the USEPA wanted the section lined as an extra precaution.

Confirmation Sampling: Confirmation sampling of the creek is ongoing to verify that the materials of concern have been adequately removed from the creek bottoms.

Work in 2002: Once all sediments from Creek Sector F have been placed in the containment cell, the cell will be capped. The cover system will consist of layers of compacted fill, High Density Polyethylene (HDPE) geomembrane, HDPE drainage net, non-woven geotextile fabric and one foot of topsoil with a vegetated cover.

Completion of the total project is estimated for the summer of 2002.

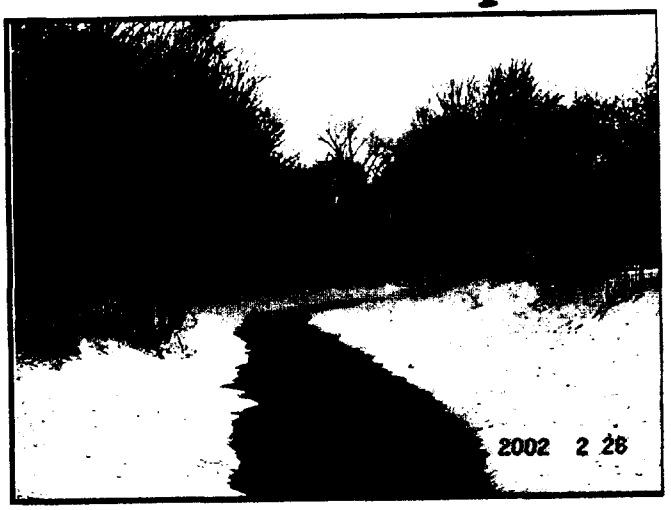
View of portion of Creek Sector F [from Cargill Road looking west]. Squares in background are the three six-foot by six-foot concrete culverts installed in November/December 2000. Installing these culverts was one of the initial phases of the creek project.

March 2002 Issue 12

Creekside Commentary

Sediment Removal Complete

Sediment Removal: Removal of sediment from the creek was completed in late February.



View of the creek from Cahokia Street after removal of construction fencing and pipe.

Approximately 8,000 truckloads of sediments were placed in the containment cell near Judith Lane. Sediments were removed from the creek beginning at Queeny Avenue in Sauget to the end of the creek in Cahokia. Additional creek sampling has been conducted. Once those results are final, limited additional action may be required.

Ducks swimming in creek near Edgar Street. Dewatering pipe is visible on bank in background. Removal of construction fence and dewatering pipe has now been completed.

Containment Cell Cap: Once all sediments were spread within the cell, a temporary cap was installed. The temporary cap will keep the sediments contained and prevent contact with surface water until the permanent cover system is installed.

Dewatering System: Removal of the pumps, dewatering pipe and the orange construction fencing around the creek has been completed.

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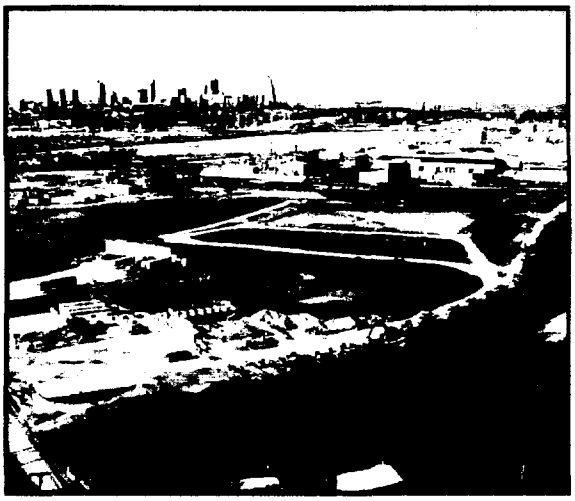
Storm Water Management: The temporary storm water collection and treatment system processed over 1.2 million gallons of storm water during the sediment removal process. This system treated all storm water that came in contact with the sediments as they were placed into the cell. The system has been cleaned and removed and replaced with a small scale unit.

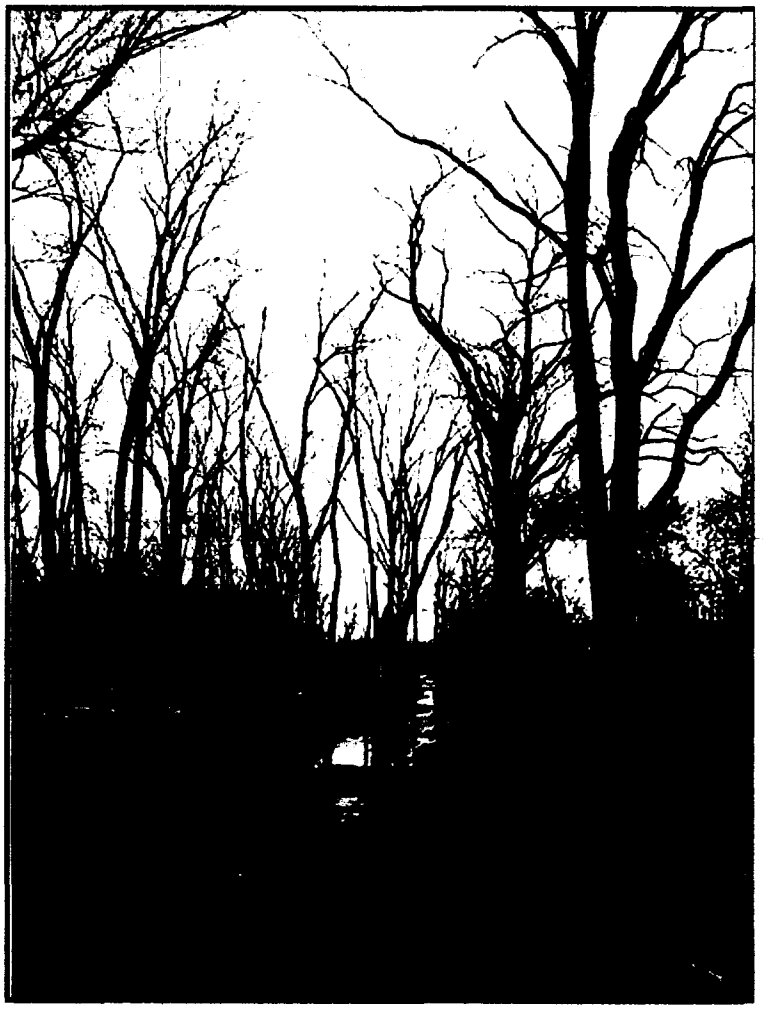
Next Steps: Equipment that is no longer needed has been cleaned and removed from the area. There will be little visible construction activity over the next several months.

Planning will be continuing, however, on the installation of the permanent cover system for the containment cell; the liner for Creek Sector B (between Queeny Avenue and Judith Lane); and creek restoration plans.



Aerial shot of Judith Lane containment cell site before temporary cap was placed on cell (indicated by black arrow). St. Louis skyline visible in background [Photo used with permission © Srenco Photography]

View of creek from Edgar Street, looking north.



View of portion of Creek Sector F [south of Route 3] taken January 18, 2002. View is looking north.